

REMARKS

1. Status of claims

Claims 1-3, 5-16, 18-26, 28-32, and 34-41 are pending.

2. Claim rejections under 35 U.S.C. § 103

The Examiner rejected claims 1-3, 5-16, 18-26, 28-32, and 34-41 under 35 U.S.C. § 103(a) as being unpatentable over Hoshi et al., WO 03/091303 and US 2005/0222331 (“Hoshi,” with references made to the US published application). Applicants traverse this rejection.

The present invention is directed to a composition containing a monovinylarene-conjugated diene coupled block copolymer, a monovinylarene-alkyl (meth) acrylate copolymer, and a monovinylarene-conjugated diene rubber, as further defined by the above claims and in light of the present specification. Hoshi teaches a composition containing a block copolymer of vinyl aromatic hydrocarbon and conjugated diene, an aliphatic unsaturated carboxylic acid ester-styrene copolymer, and a rubber-modified styrene polymer [0029, 0070-73]. The Examiner stated that Hoshi does not anticipate the claims (detailed action, page 3, first full paragraph, final sentence), which indicates the Examiner recognizes the “rubber-modified styrene polymer” of Hoshi differs from the “monovinylarene-conjugated diene rubber” of the present claims. The Examiner’s view is that the monovinylarene-conjugated diene rubber of the present claims is substantially the same as the rubber-modified styrene polymer of Hoshi. The Examiner’s view is incorrect.

A large number of technical reasons why the Examiner’s view is incorrect have been presented previously and are still advanced by Applicants. In addition, Applicants point out that

the plain meaning of the various phrases in the present claims and specification and Hoshi make clear to the skilled artisan the substantial differences between the monovinylarene-conjugated diene rubber of the present claims and the rubber-modified styrene polymer of Hoshi. A “rubber-modified styrene polymer” will be understood by the skilled artisan as a styrene polymer substantially retaining the properties of a styrene polymer with some variation resulting from its modification by the grafting of an amount of rubber into the styrene polymer matrix. The skilled artisan would *not* understand rubber-modified styrene polymer as being a rubber (a material having substantially rubbery properties) made of styrene. The modification in Hoshi’s “rubber-modified styrene polymer” can result in a polymer usable “as an improver for rigidity, impact resistance and slipperiness” [0079]. The Examiner inflated the importance of “impact resistance” in the quoted passage in support of his allegation of similarity between the monovinylarene-conjugated diene rubber used by the Applicants and the rubber-modified styrene polymer of Hoshi, but (i) the impact resistance of Hoshi’s material is not quantified in any terms, either absolute or relative to a material generally considered by the skilled artisan to be a rubber, and (ii) the Examiner downplayed Hoshi’s statement that the “rubber-modified styrene polymer” was usable as an improver for rigidity, which is not generally considered to be a property of a rubber.

It is true that *vulcanized* rubber has higher rigidity than nonvulcanized rubber. However, the skilled artisan will understand that the material of Hoshi does not comprise vulcanized rubber. Hoshi is limited to copolymerization of styrene and an elastomer [0078, first sentence, “The rubber-modified styrene polymer... is obtained...”]. Copolymerization involving a latex of the elastomer being dissolved in styrene is taught at [0079]. However, the skilled artisan will understand that the dissolution of a latex in styrene would destroy the latex and lead to the

grafting of rubbery particles to the polystyrene matrix. A latex, however, is not vulcanized. Were a vulcanized rubber to be contacted with styrene, the styrene would not dissolve the vulcanized rubber and thus the vulcanized rubber would not be dispersed in the polystyrene matrix; allowing the formation of grafted rubbery, vulcanized particles to the polystyrene matrix. Therefore, any rigidity imparted to the composition of Hoshi by his “rubber-modified styrene polymer” does not arise from the rubbery particles within the polystyrene matrix. To state that a nonvulcanized material that imparts rigidity to a composition is a “rubber” is an unreasonably broad interpretation of the term and is sufficient in and of itself to indicate that the monovinylarene-conjugated diene rubber of the present claims is substantially different from a material that imparts rigidity to a composition.

Fundamentally, it appears the Examiner has interpreted the term “a rubber” in a manner repugnant to the plain meaning as known to the ordinary skilled artisan. “A rubber” is a material having substantially rubbery properties, not a material having rubber particles (small portions of a rubber) grafted thereto. A “rubber-modified styrene polymer” or “rubber-modified polystyrene” has the plain meaning of a styrene polymer modified by the inclusion of a small weight fraction of rubber particles and is not a rubber made from modified styrene. Because it imparts rigidity to the composition of Hoshi, Hoshi’s “rubber-modified styrene polymer” does not have substantially rubbery properties and is therefore not a rubber.

It is possible the use of hyphens in different ways between the present claims and Hoshi has engendered confusion. The present claims recite a “monovinylarene-conjugated diene rubber,” in which it is clear that the hyphen indicates the rubber is a copolymer containing both monovinylarene and conjugated diene. Hoshi refers to a “rubber-modified styrene polymer,” in

which it is clear that the hyphen serves to render the term “rubber-modified” into an adjective modifying the term “styrene polymer.”

The detailed action included a number of misstatements. First, the paragraph cited at page 1025 of the “Styrene Plastics” reference is entitled “Rubber-Modified Polystyrene,” not “Rubber Modified Polystyrene” without a hyphen as identified in the detailed action. The correct term, in the context of the reference, indicates that styrene plastics include polystyrene and that polystyrene can be modified by the inclusion of rubber particles. The final material, however, is clearly a member of the group of styrene plastics and is excluded from the group of rubbers. “Rubber particles” is a term of art for inclusions of a rubbery material in a polystyrene matrix. Second, the reference does not state, “a significant portion of PS matrix is filled with ‘rubber’” (detailed action, page 4), but rather states that the PS is filled with “rubber particles.”

The detailed action also reflects poorly-supported arguments. The statement that the polystyrene matrix contains rubber particles, so Hoshi’s rubber-modified styrene polymer “is therefore clearly a ‘rubber’” is nothing more than begging the question (detailed action, page 4).

In conclusion, the Examiner has failed to make a *prima facie* case for the unpatentability of the present claims over Hoshi. First, Hoshi provides no motivation to modify its teachings to arrive at the present claims. Specifically, from Hoshi’s teaching that “rubber-modified styrene polymer” can enhance the rigidity of his composition, the skilled artisan lacks motivation to include a monovinylarene-conjugated diene rubber in a composition. On its face, Hoshi’s teaching generates an expectation of failure to the inclusion of a monovinylarene-conjugated diene rubber in a composition. Finally, for reasons presented above and previously at great length, Hoshi does not suggest all the limitations of the present claims.

Therefore, the present claims are patentable over Hoshi. Applicants request this rejection of claims 1-3, 5-16, 18-26, 28-32, and 34-41 be withdrawn.

3. *Conclusion*

Applicants submit all pending claims are in condition for allowance. The Examiner is invited to contact the undersigned patent agent at (713) 934-4065 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

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